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ABSTRACT

Twenty-one California career-vocational educational articulation projects, commonly referred to as 2 + 2 partnerships, were jointly funded across the 1986-89 funding period and third-party evaluations were conducted in 1988-89. The longitudinal study examined the long-term effects of the original partnerships. Evaluators formed an advisory committee, reviewed project documentation, collected baseline data from 2,955 secondary students, and conducted site visits. During 1990-91, 15 partnerships continued or expanded project activities beyond the close of special federal funding. Most of the students were male. Nearly one-third of the students were Hispanic. The mean grade point average was 2.90. More than three-quarters of the students plan to earn a high school diploma and most intend to enroll in a community college. Several recommendations are offered based on the first year of the longitudinal study: (1) consider expansion of statewide support; (2) disseminate information regarding articulated credit; (3) consider the standardization of articulation forms; (4) emphasize the importance of counseling; (5) clarify the distinctions between 2 + 2 and tech prep; (6) develop a statewide management information system; and (7) expand the focus of the longitudinal study. (Seven figures, nine tables, and three appendices are included. The appendices contain a list of advisory committee members, student data forms, and program data forms/site visit interview schedules.) (NLA)

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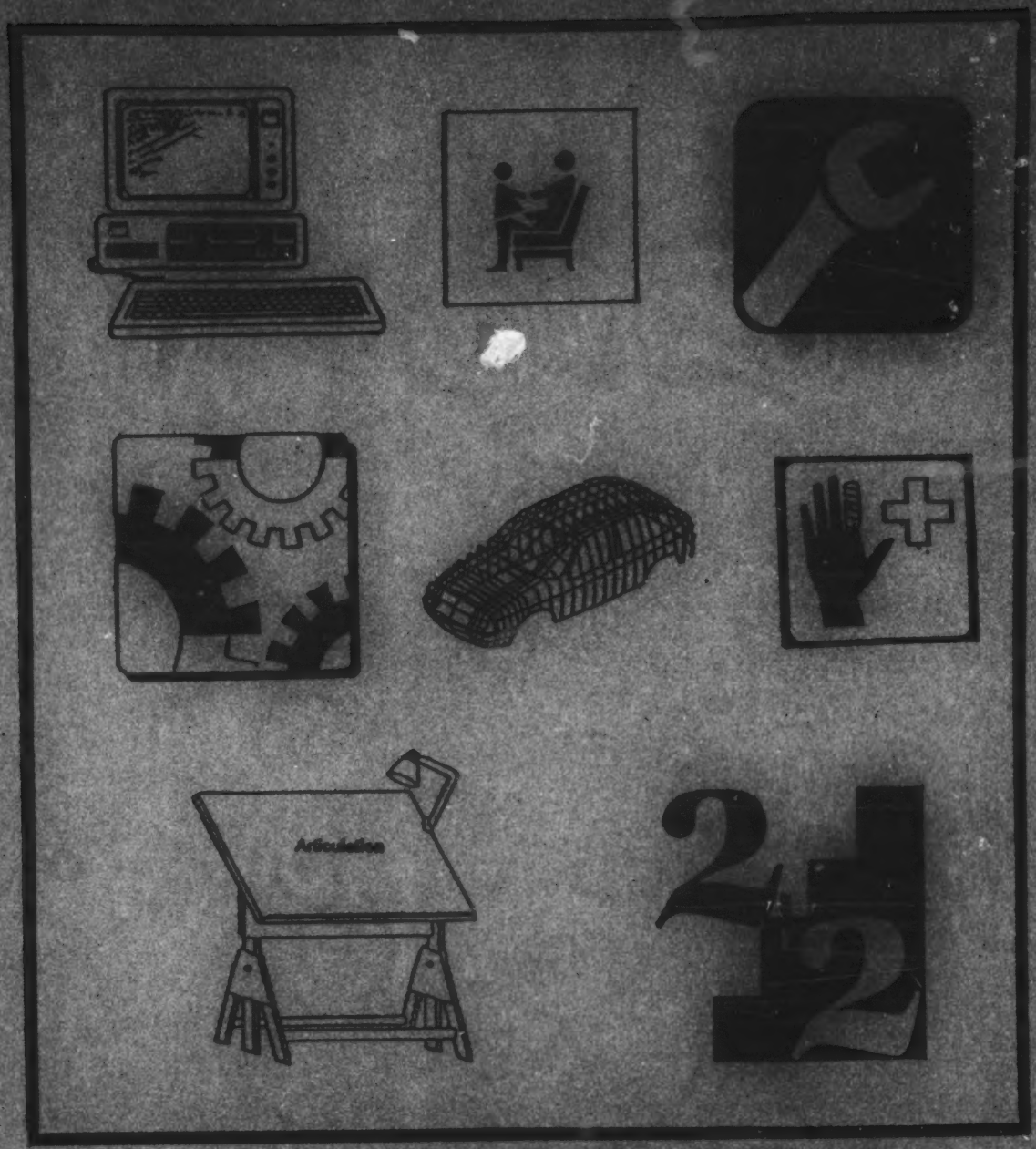

Longitudinal Evaluation of 2 + 2 Career-Vocational Education Articuation Projects

First Year Interim Report

June 1991

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LONGITUDINAL EVALUATION OF 2 + 2 CAREER-VOCATIONAL EDUCATION ARTICULATION PROJECTS

FIRST YEAR INTERIM REPORT

JULY 1991

Submitted to:
OFFICE OF THE CHANCELLOR
CALIFORNIA COMMUNITY COLLEGES
and
THE CALIFORNIA DEPARTMENT OF EDUCATION

Submitted by:
EVALUATION AND TRAINING INSTITUTE
Los Angeles, California

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"The activity which is the subject of this report was supported in whole or in part by the U.S. Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Department of Education, and no official endorsement by the U.S. Department of Education should be inferred."

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Executive Summary

Program articulation is a process which brings together two or more educational systems to help students make a smoother transition from one program, course, or educational level to the next. In this manner, students can pursue career, vocational, or occupational goals without duplication of courses or levels of competency. Twenty-one career-vocational education articulation projects, commonly referred to as 2 + 2 articulation projects, were jointly funded by the Chancellor's Office of the California Community Colleges and the California Department of Education (CDE) across the 1986-89 funding period. The Evaluation and Training Institute (ETI) conducted objective, third-party evaluations of these partnerships in 1988 and 1989, the results of which demonstrated the viability of articulation.

In 1990, ETI was contracted by the Chancellor's Office to conduct a comprehensive, five-year longitudinal evaluation of these original 2 + 2 articulation projects. The goal of this longitudinal study focused on examining the long-term impacts and effects of the original 2 + 2 partnerships. Evaluation activities included: formation of a project Advisory Committee; review of project documentation; collection of baseline data from participating secondary students; and site visits to the 2 + 2 partnerships, where project staff, counselors, administrators, faculty, students, and business and industry representatives were interviewed.

During 1990-91, **the majority of the original 2 + 2 projects--15 partnerships--have continued or expanded project activities beyond the close of special federal funding.** More specifically:

- The number of participating institutions increased by 10% from the previous year, from 417 to 460 institutions;
- Compared to 1989-90 figures, the number of articulation agreements increased by 20%, from 695 agreements to 857;
- The majority of partnerships expanded into new program areas or programs outside of vocational education, with 128 agreements, or 15% of the total, established in the academic area;
- Nearly one thousand faculty have been involved statewide in the development of articulation agreements;

- At the majority of 2 + 2 projects, Articulation Councils have continued to meet, providing on-going guidance and leadership;

- Business and industry continued and/or expanded their involvement in 2 + 2 partnership efforts, primarily through contributions to the development of competencies needed for successful program completers, representation on Articulation Councils, support of marketing efforts, and donation of equipment and training sites;

- Seventy-five companies participated in 2 + 2 partnership activities;

- Over 150 job titles, ranging from entry-level jobs to sophisticated occupations requiring advanced skills, were classified as appropriate for participating 2 + 2 students;

- The majority of the 2 + 2 projects continued to provide college credit for articulated courses through the credit by examination process, although the definition of "examination" varied from project to project;

- The factors most commonly reported as playing a critical role in contributing to student retention and successful completion of the 2 + 2 program included: committed faculty providing a strong quality instructional program; appropriate counseling for students; opportunity to earn college credit at the secondary school level; and strong communication between the partner institutions, students, and parents;

- Most partnerships developed specific linkages, particularly in the counseling area, to assist students in moving from one educational level to the next; and

- Projects augmented promotional activities in 1990-91, particularly by focusing promotional efforts below grade 11.

In terms of baseline student data, the majority of participating secondary students were male. Nearly one-third of the students were Hispanic. The mean self-reported grade point average of participating students was 2.90 on the 4-point scale. More than three-quarters of participating secondary students reported that they planned to earn a high school diploma. Finally, for postsecondary education plans, most of the students indicated that they intended to enroll in or graduate from a community college.

Several challenges faced the 2 + 2 partnerships as they continued outside of the funding cycle in 1990-91:

- Five of the original 2 + 2 projects can be classified as inactive, with no expansion activities, promotional activities, and/or active articulation agreements;
- Only five of the original 2 + 2 articulation projects have established a formal student follow-up system;
- Changing student demographics have impacted the ability of the partnerships to establish direct four-year education pathways, as a growing proportion of participating students leave the program after grade 12; and
- Project directors and program staff need more information about the relationship between the current 2 + 2 partnerships and the new tech-prep programs as specified in the new Vocational and Technology Education Act.

Recommendations

Based on these findings from the first year of the longitudinal study, ETI offers the following seven recommendations to the Chancellor's Office and the CDE:

Consider Expansion of Statewide Support for 2 + 2 Partnerships
As 2 + 2 project directors valued the assistance provided by the 2 + 2 demonstration projects and statewide conferences, ETI recommends that both agencies consider expanding such support, particularly in light of the changes to the Vocational Education Act.

Disseminate Information Regarding Articulated Credit
Due to continued concern over credit granting by the 2 + 2 partnerships, ETI recommends that the state agencies distribute the special Task Force report which addresses issues regarding articulated credit. This is particularly important given the changing demographics of secondary student participants in the 2 + 2 partnerships.

Consider the Standardization of Articulation Forms
The Chancellor's Office and CDE should investigate establishing standard forms for articulation agreements in order to provide consistency in reporting and record-keeping across all partnerships. Similarly, standard forms for student follow-up would allow for coordination of evaluation efforts with other statewide articulation activities (such as the 2 + 2 + 2 programs and the California Articulation Network [CAN]).

Emphasize the Importance of Counseling in 2 + 2 Partnerships
Given the strong role of counseling in student retention and successful completion of 2 + 2 programs, as reported by project directors, ETI recommends that for future 2 + 2 and tech-prep efforts, the state agencies continue to highlight the importance of the critical role of counseling for student success in 2 + 2 programs.

Clarify the Distinctions Between 2 + 2 and Tech Prep
With the augmented role of tech-prep in the new Vocational and Technology Education Act, ETI recommends that both agencies develop and disseminate information clearly describing the association between these two programs.

Develop a Statewide Management Information System
As only five of the original 2 + 2 partnerships have established a formal student follow-up system, ETI recommends that the state agencies review the feasibility of establishing a formal management information system to capture accurate student and program data for comprehensive program evaluation.

Expand the Focus of the Longitudinal Study
Given the changing demographics of student participants, specifically the increased number of 2 + 2 participants who "stop out," ETI recommends that the state agencies expand the focus of the current longitudinal study to include examination of the educational and career outcomes of these students.

Introduction

Program articulation is a process which brings together two or more educational systems to help students make a smoother transition from one program, course, or educational level to the next. In this manner, students can pursue career, vocational, or occupational goals without duplication of courses or levels of competency. The end result of successful articulation is for students to reach their desired goals through an efficient sequence of courses and progressive achievement of instructional goals.

Twenty-one career-vocational education articulation projects, commonly referred to as 2 + 2 articulation projects, were jointly funded by the Chancellor's Office of the California Community Colleges and the California Department of Education (CDE) across the 1986-89 funding period. (The first "2" refers to the last two years of a secondary program; the second "2" to the first two years at a community college). The Evaluation and Training Institute (ETI) conducted objective, third-party evaluations of these projects in 1988 and 1989. Evaluation findings noted the viability of articulation; specifically, effective articulation eliminated duplication of effort, encouraged retention, and facilitated students' progress toward education/career goals.

In 1990, ETI was contracted by the Chancellor's Office to conduct a comprehensive, five-year longitudinal evaluation of these original 2 + 2 articulation projects. The goal of this study focused on examining the long-term impacts and effects of the original projects, including:

- students' attainment of educational and career goals;
- program expansion and innovation; and
- program institutionalization.

Evaluation activities in this first year of the study also included collection of baseline data from secondary students participating in 2 + 2 projects in order to establish a database for longitudinal follow-up.

Organization of the Report

The remainder of this report presents the background of the 2 + 2 projects, methodology, general observations, detailed findings, and recommendations from the first year of this study.

Background

The image of the Regional Occupational Center is being enhanced by the success of our 2 + 2 students.

ROC Director

The 1983 report of the National Commission on Excellence in Education, A Nation at Risk, documented several problems facing education today, including illiteracy, declining standardized test scores, and the growing demand for remedial education. In California, there are the particular problems of the increasing high school dropout rate, the lack of high school preparation necessary for students to make a successful transition to college and the workplace, and the underrepresentation of minority and low-income students in postsecondary education. Educators agree that these challenges cannot be borne by the secondary schools alone, but must be met at all levels of education.

In his book, The Neglected Majority, Dale Parnell notes the need for increased high school/community college cooperation. To compete in today's work place, the 80% of high school graduates who will not earn a four-year degree need both a strong general and technical education. Additionally, the American Association of Community and Junior Colleges has made improvement of the high school/community college connection a priority since 1987.

California's educational segments have supported the concept and encouraged the development of program articulation among community colleges, high schools, and other secondary and postsecondary institutions. The Board of Governors of the California Community Colleges initially identified high school articulation as a priority for action in both its 1985 and 1986 Agendas. More important, in its 1986 report, The Challenge for Change: A Reassessment of the California Community Colleges, the California Commission for Review of the Master Plan for Higher Education noted that, "There is renewed concern for clear articulation between high schools and colleges regarding the preparation needed for success . . ."

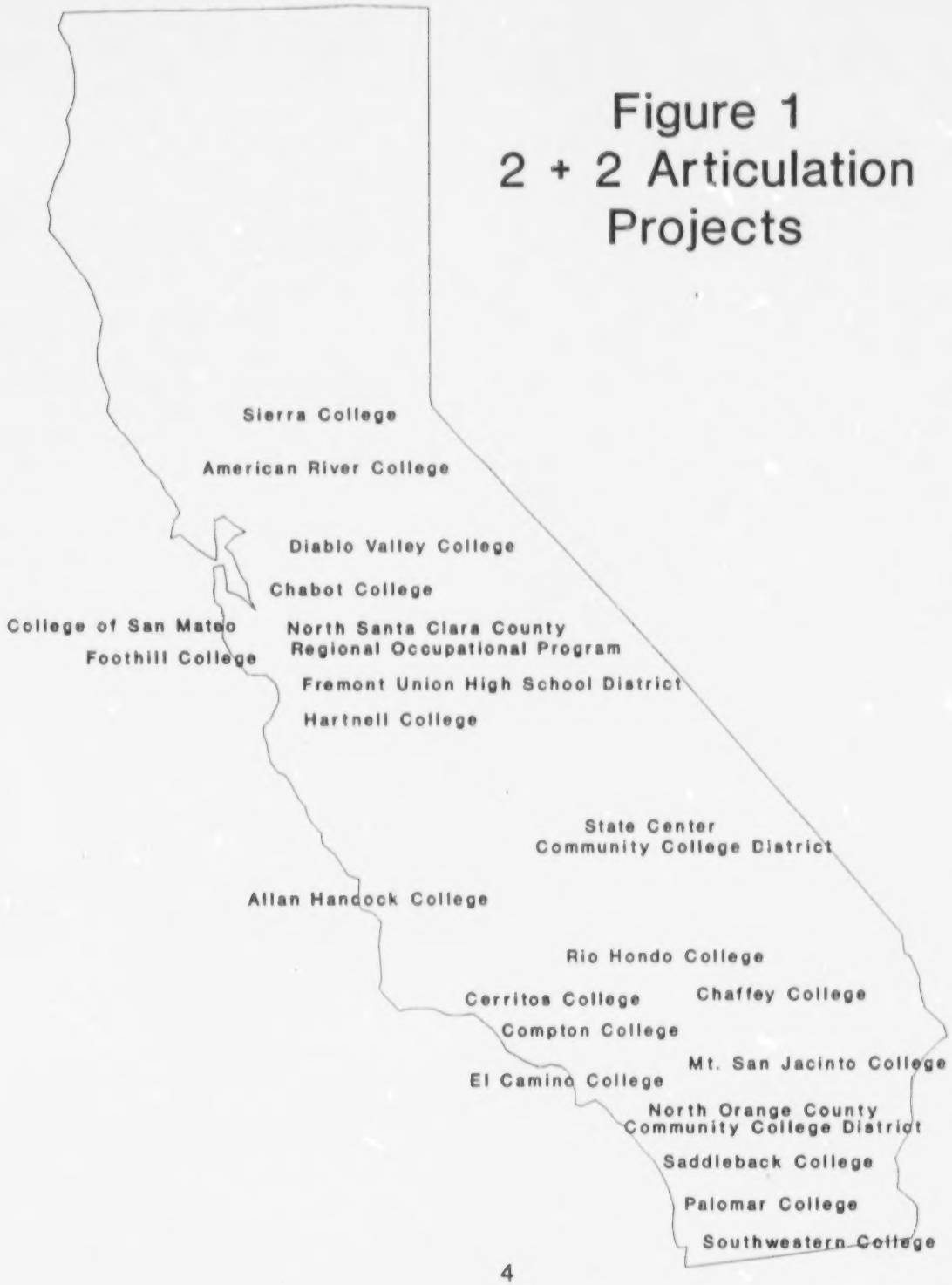
In response to this report, the Chancellor's Office and the CDE jointly allocated over $2 million of federal vocational education special project funds across the 1986-89 funding years to support high school/community

college career-vocational education articulation programs. Through the Request for Proposal (RFP) process, 21 articulation projects were funded at various developmental stages. As shown in Figure 1, these 2 + 2 projects were located throughout California, in both rural and urban areas, serving diverse student populations. As many of the projects lacked official titles, by convention, the 2 + 2 projects have been referred to by the name of the community college/district partner. It is important to note this naming convention was adopted for convenience and ease of reporting; this in no way reflects a diminished role of the secondary schools and other educational institutions in partnership activities.

These 2 + 2 articulation projects brought together secondary schools, ROCs/Ps, adult schools, and the community colleges to help students progress from one program, course, or educational level to the next. The 2 + 2 partnerships served to formalize the articulation of secondary school curricula, and to create clear educational pathways for students that would enable them to move from one educational segment to the next highest level without duplication of effort. Objective third-party evaluations conducted by ETI in 1988 and 1989 demonstrated the viability of articulation. Based in part on findings from these evaluation studies, in 1990, the Chancellor's Office and the CDE jointly allocated $ 85,000 to fund five of the original 2 + 2 projects as model projects. These model projects hosted demonstration workshops statewide and provided localized technical assistance on the development and expansion of 2 + 2 programs.

After three years of funding the 2 + 2 projects, both the Chancellor's Office and the CDE recognized the need for a systematic and thorough assessment of the long-term impact and effects of the projects, examining both student-related and program-related components. In response to this need, ETI was contracted to conduct this five-year longitudinal study of the impact of the original 2 + 2 projects.

Figure 1
2 + 2 Articulation Projects



Methodology

The first year of the longitudinal evaluation centered on four major activities: establishment of a project Advisory Committee; review of project documentation; collection of baseline data from participating secondary students; and site visits to the 2 + 2 partnerships.

Formation of Project Advisory Committee

A project Advisory Committee, composed of secondary and community college representatives from selected 2 + 2 projects, was established to assist this study. A list of Advisory Committee members is presented in Appendix A of this report. The role of the Advisory Committee was threefold:

- Reviewing the longitudinal study design and methodology;
- Assisting in the development of the survey of participating secondary students; and
- Identifying key issues for review during the on-site visits.

Document Review

Project proposals, final reports, marketing media, and other partnership materials were reviewed to examine partnership activities, project progress, and institutionalization efforts. Project documentation was obtained from the 2 + 2 projects, the CDE, and the Chancellor's Office.

Student Data Collection

In consultation with the project Advisory Committee, ETI developed a student data form, which was designed to collect specific baseline information from participating secondary students. A copy of the student data form is included in Appendix B. The student data forms were distributed to the project directors of the original 2 + 2 projects in April, 1991. Follow-up telephone calls were made to the project directors to clarify

any questions or concerns regarding the collection of student data. Project directors coordinated the distribution of these forms to secondary school students who indicated that they had participated (or were presently participating) in the 2 + 2 program.

A total of 2,955 student data forms were received from the 2 + 2 projects. Specific student information, including social security numbers and birthdates, was collected and maintained in a student database for use in future student follow-up with this longitudinal study.

Site Visits

Site visits were conducted to the original 2 + 2 articulation projects, where project staff, counselors, administrators, faculty, students, business and industry representatives, and others involved with or affected by the project were interviewed. These site visits were designed to collect specific program data, such as: the number and type of articulated courses; the number of participating institutions; and business and industry involvement in the 2 + 2 partnerships. In addition, the site visits assessed program administration, expansion, innovation, and institutionalization.

Site visits were conducted to 20 of the 21 original 2 + 2 projects. (One of the original projects, located at the Fremont Union High School District, has been integrated into the North Santa Clara County ROP 2 + 2 partnership). A telephone interview was held with staff from the El Camino Community College District partnership, which, since 1987, has not received any federal vocational education special project funds for articulation.

In consultation with the project Advisory Committee, ETI developed two sets of interview schedules for collecting information during the site visits. Program data forms were designed to capture specific program data, such as the number of articulation course agreements. A site visit interview schedule was developed to capture qualitative data regarding project progress, expansion, and innovation. Copies of the program data forms and site visit interview schedule are included as Appendix C of this report.

Both program data forms and site visit interview schedules were mailed to each 2 + 2 project director in advance of the ETI site visit. The project directors were directed to complete the program data forms before the ETI site visit, as these forms were to be reviewed during the visitation. The site visit interview schedules were also sent in advance of the visit, so that administrators, staff, faculty, and others would have a sense of the types of issues to be discussed during the site visit.

General Observations

The training students received at the Regional Occupational Center as a result of our 2 + 2 program made students feel comfortable about attending college.

Assistant Dean of Instruction

This section of the evaluation report presents an overview of general observations from the original 2 + 2 articulation projects, based on site visit interviews and a review of program data. There are four key areas under discussion in this general overview: the current status of the 2 + 2 partnerships; the definition of articulation; the changing demographics of student participants; and the planning for tech-prep.

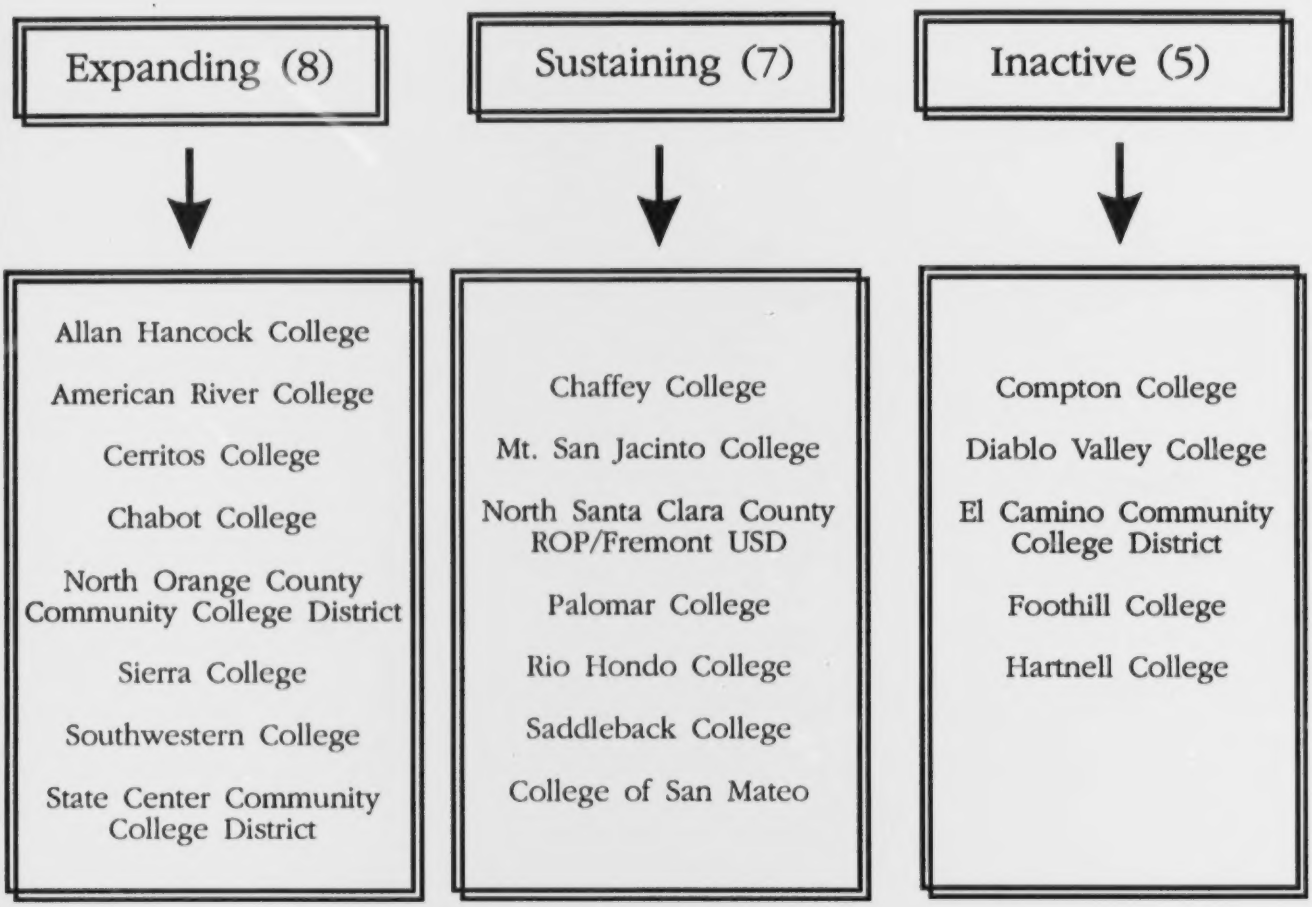
Current Status of 2 + 2 Partnerships

The original 2 + 2 partnerships can be classified into three categories, based on their activities in the 1990-91 program year:

- **Expanding projects**, where partnership activities have continued and expanded beyond the close of special federal funding;
- **Sustaining projects**, where partnerships activities have simply continued at the same level as prior to the end of special federal funding; and
- **Inactive projects**, where partnerships have substantially decreased or altogether ceased activities since the end of special federal funding.

As shown in Figure 2, eight of the original 2 + 2 projects can be classified as expanding projects, with growth in the number of programs/courses articulated and the number of partner institutions. Seven of the original 2 + 2 projects are sustaining projects, with policies and procedures in place for program articulation, but little active expansion efforts. Only five of the original 2 + 2 projects can be classified as inactive projects, with no expansion activities, promotional activities, and/or active articulation agreements.

Figure 2
Status of 2 + 2
Career-Vocational Education
Articulation Programs
1990-91



Definition of Articulation

A critical component in understanding the 2 + 2 projects lies in each project's definition of which educational level is being articulated: vocational courses or entire vocational programs. In 1990-91, as was reported in prior evaluation reports, most 2 + 2 articulation in California continues to be **course articulation**: articulation agreements were developed on a course-by-course basis. For example, Auto Body 1 at a particular secondary school might articulate with Auto Mechanics 65 at a specific community college. This differs from **program articulation**, where entire vocational programs are articulated across participating institutions.

In essence, the original 2 + 2 projects have demonstrated little formal total program 2 + 2 articulation--the partnerships have established detailed course-by-course, competency-based articulation agreements, but not formal programs with a structured career ladder and complete course sequence. According to 2 + 2 project directors, while program articulation is more beneficial in helping students pursue career goals, it involves substantial curricular reform at all participating institutions; this is a challenge that has yet to be met by the partnerships.

Changing Demographics of Student Participants

As originally envisioned, the 2 + 2 partnerships were designed as four-year educational progressions, with students completing grades 11 and 12 and then proceeding up the educational ladder to complete two years of community college instruction. However, changing student flow patterns have impacted this four-year pathway. The average age of students attending community college has increased statewide. More important, as reported by project directors, a growing percentage of participating secondary students leave after grade 12 to enter the workforce, the military, or raise a family before returning several years later to the community college. And as only five of the original 2 + 2 partnerships have established formal student follow-up systems, it is extraordinarily difficult to determine if the students who leave eventually return to complete the program.

While the students who have left received the benefits of the articulated curriculum at the secondary level, time restrictions on the use of credit often prohibit them from receiving college credit for the articulated courses. Thus, these changing statistics on student participants have substantial implications for the structure and operation of the 2 + 2 programs.

Moreover, the changing demographics raise important questions regarding the educational and career outcomes of students who leave the programs; specifically, do these students:

- return to complete the 2 + 2 program?;
- enter the workforce in a field related to the 2 + 2 program?; or
- enter the workforce with better skills as a result of their participation in 2 + 2 programs?

Planning For Tech-Prep

The new Vocational and Technology Education Act authorized special funds for secondary schools to join with community colleges or apprenticeship programs to create tech-prep curricula. These programs would include:

> . . . a common core of required proficiency in mathematics, science, communications, and technologies designed to lead to an associate degree or certificate in a specific career field (Section 344).

Although based on common principles, there are specific differences between 2 + 2 articulation projects and the proposed tech-prep programs, particularly as the tech-prep programs require a common program core with instruction in communications. While there appears to be a great deal of anticipation for tech-prep programs by 2 + 2 project directors, these directors lack sufficient information on the association between tech-prep and 2 + 2.

Detailed Findings

This section of the report presents findings regarding specific areas of the 2 + 2 partnerships. These findings arose from a review of project documentation, site visit interviews, and student data.

Partner Institutions and Articulation Agreements

Table 1 illustrates the number of institutions involved in each 2 + 2 project by educational segment for the 1989-90 and 1990-91 program years. As shown in the table:

- During 1990-91, 460 educational agencies participated in 2 + 2 articulation partnerships, with an average of 25 partners at each 2 + 2 project. **This represents a 10% increase in the number of partner institutions from the previous year.**

- The education segments recording the greatest percentage increases in the number of participants across the two-year period included private institutions (a more than 100% increase), the California State University (a 40% increase), and the community colleges (an 18% increase).

- Past evaluation reports noted the relative lack of participation of adult schools in the 2 + 2 projects, primarily due to a decreased emphasis on vocational programs at the adult schools. This trend continued in 1990-91, as evidenced by the reduced number of adult school partners in 2 + 2 projects.

With respect to articulation agreements, direct comparisons are problematic due to the lack of standardization across 2 + 2 projects. While some projects develop "umbrella" agreements for all programs/courses within a discipline area for all partner institutions, other partnerships develop separate agreements for each program/course with each partner institution. Thus, the figures detailed below represent the aggregate number of agreements as reported by the partnerships.

Table 1

2 + 2 Project Partners by Educational Segment 1989-90 and 1990-91

	Number of Partners*	
Educational Segment	**1989-90**	**1990-91**
Secondary Schools	206	220
Secondary School Districts	95	101
ROC/Ps	35	38
Adult Schools	16	15
Community Colleges	22	26
Community College Districts	20	20
California State University	15	25
University of California	2	1
Private**	6	14
TOTAL	**417**	**440**

* these figures are not unduplicated counts, as different 2 + 2 projects could have developed articulation agreements with the same partners.

** includes private secondary and postsecondary institutions

Table 2 presents the number of signed articulation agreements by discipline area for 1990-91. **A total of 857 agreements were recorded in 1990-91**, predominantly in the areas of Industrial and Technology Education (39% of all agreements), and Business Education-Office (28% of all agreements). Specifically, these included agreements for courses in keyboarding/ typewriting, drafting, automotive repair, and welding. In addition, **15% of all agreements (128 agreements) were in the academic disciplines** of English, mathematics, science, social science, and foreign language.

A comparison between the number of signed agreements in the 1989-90 and 1990-91 program years is shown in Table 3. **Across the two-year period, the number of agreements increased by 20%, from 689 to 857.** More specifically, the number of agreements in vocational areas increased by 6% across the two-year period, from 689 to 729. The greatest increase in the number of signed agreements across the period was reported in the Business Education-Marketing, Consumer Economics, and Power/Energy/Transportation Technology areas.

Only six of the original 2 + 2 partnerships reported canceling or discontinuing articulation agreements during 1990-91. Project directors reported that these agreements were not canceled due to any problems, but rather, due to cutbacks or elimination of specific articulated programs/courses led to the cancellation of the agreements.

Finally, Table 4 illustrates the number of faculty involved in developing 2 + 2 articulation agreements by discipline area. **Nearly one thousand faculty have been involved in the development of articulation agreements statewide,** primarily in the areas of Industrial and Technical Education and Business Education-Office.

Project Administration

As part of the requirement for special federal vocational education funding, the 2 + 2 projects were required to establish Articulation Councils. These Councils, with representation from school administrators, counselors, faculty, and business and industry, provided guidance and leadership. For some partnerships, business and industry were represented on the Articulation Councils indirectly, through their participation in local vocational education program area advisory committees.

Ten of the original 2 + 2 projects reported that their Articulation Councils continued to meet on a regular basis during 1990-91. Articulation Councils met on an informal basis at four of the 2 + 2 projects,

Table 2

Number of Signed 2 + 2 Articulation Agreements by Discipline Area 1990-91

Discipline Area	Number of Signed Agreements
Business Education-Office	241
Power/Energy/Transportation Technology	121
Visual Arts-Drafting	79
Mathematics	70
Electronics Technology	47
Business Education-Marketing	45
Consumer Economics	45
Manufacturing Technology	38
English	29
Visual Arts-Graphics	26
Home Economics Related	24
Construction Technology	24
Health Occupations	22
Science	20
Agriculture	9
Social Science	8
Public Safety	5
Diversified Occupations	2
Ocean Technology	1
Foreign Language	1
TOTAL	**857**

Table 3

Number of Signed 2 + 2 Articulation Agreements by Discipline Area 1989-90 and 1990-91

	Number of Agreements	
Discipline Area	**1989-90**	**1990-91**
Business Education-Office	310	241
Power/Energy/Transportation Technology	90	121
Visual Arts-Drafting	77	79
Electronics Technology	39	47
Consumer Economics	11	45
Business Education-Marketing	5	45
Manufacturing Technology	52	38
Visual Arts-Graphics	11	26
Construction Technology	29	24
Home Economics Related	32	24
Health Occupations	20	22
Agriculture	10	9
Diversified Occupations	3	2
Mathematics	NR	70
English	NR	29
Science	NR	20
Social Science	NR	8
Public Safety	NR	5
Ocean Technology	NR	1
Foreign Language	NR	1
TOTAL	**689**	**857**

NR = not reported

Table 4

Number of Faculty Involved in Developing 2 + 2 Articulation Agreements by Discipline Area

Discipline Area	Number of Faculty Involved
Business Education-Office	229
Power/Energy/Transportation Technology	136
Visual Arts-Drafting	124
Electronics Technology	64
Home Economics Related	62
Manufacturing Technology	57
Visual Arts-Graphics	51
Consumer Economics	48
English	41
Construction Technology	35
Health Occupations	29
Mathematics	25
Science	24
Agriculture	18
Business Education-Marketing	17
Social Science	14
Public Safety	8
Diversified Occupations	4
Ocean Technology	2
TOTAL	**988**

while only five of the projects reported that the Councils were no longer meeting in 1990-91. The composition of the Articulation Councils changed little during 1990-91, except for the growth in membership as the partnerships expanded, or the change in specific individuals due to new job assignments.

In addition to Articulation Councils, the original 2 + 2 projects had established specific discipline task forces/curriculum committees for the development of articulation agreements. **Fourteen of the 2 + 2 projects reported that in 1990-91, these task forces/committees continued to meet on a regular or informal basis.** The task forces/committees no longer met at only six of the original 2 + 2 partnerships.

Business and Industry Involvement

Beyond their representation on the Articulation Councils, business and industry continued to be involved in the 2 + 2 projects during 1990-91. As shown in Table 5, 75 companies, both large and small, were involved in the 2 + 2 partnerships during 1990-91. This represents a more than 100% increase in the number of participating companies compared to the 34 companies involved during 1989-90. These companies represented the manufacturing, computer, electronics, health care, and service-related industries.

More specifically, as presented in Table 6, the primary involvement of business and industry included the following:

- Through their participation on the vocational education program area advisory committees, business and industry representatives have contributed to the development of competencies needed for successful program completers;

- Business and industry representatives have provided the partnerships projects with equipment, supplies, and job training facilities;

- Assistance in job placement was provided by business and industry; and

- Business and industry representatives supported marketing activities, promoting the 2 + 2 articulation efforts to students, faculty, staff, parents, and the community.

Table 5

Companies Participating in 2 + 2 Projects 1990-91

AGFA Camera Equipment
Alza Corporation
Amdahl Corporation
Anaheim General Hospital
Apple Computer Incorporated
ASK Computer Systems Incorporated
Bosch Electric Laboratory
California State Employment Development Department
California State Department of Rehabilitation
California Young World
Carmel Tool and Abrasive
Chrysler Motors
Circle Seal
Coopers and Hybrand Accounts
Early Horizons Infants-Toddlers and Preschool Center
Eastern Municipal Water District
Faria Child Development Center
Folsom Prison
Ford Motors
Fremont-Older Child Development Center
Fresno Auto Body and Garage
Fresno County Farm Bureau
Fresno County Health Department
Fresno Showcase
Frontier Ford
General Automotive Repair
General Motors
Glass Shack
Gotschalks
Grass Valley Group
Hart Federal Savings and Loan
Hewlett-Packard
Hilton Hotels
Hunter and Price Paint Company
IBM
Internal Revenue Service
Interstate Electronics
KARE Automotive
KCTY Television
KICU Television
Klein Automotive
Lafayette Park Hotel
Lawrence Livermore National Laboratory
Liposome Technology Incorporated
Litton Industries
Long Beach Naval Shipyards
Los Altos Parks and Recreation Dept
Morgan Center After-School Project
NASA/AMES Professional Office Career Internship Program
NAUI
NUMI Corporation
NEC Electronics
PDM Steel
Pinkey Winther
Placer City Auditors
Rand M Paints
Rockwell International
St. Clare's School After School Day Care Program
San Diego Gas and Electric
Santa Clara County Humane Society
Santa Clara County Valley Medical Center
Shaw Computer Center
SIMS Orange Welding Supply
Smith Tool Company
Southland Corporation
Stocklmeyer Child Development Center
Syntex Center
Techniprint
United Airlines
Varian Associates
Volt Temporary Services
Watkins/Johnson Company
Wells Fargo Bank
Western Assembly Corporation
White Pine Lumber Company

Table 6

Business and Industry Involvement in 2 + 2 Projects 1990-91

Type of Involvement	Number of Projects Reporting*
Participated in local subject-area Advisory Committees	11
Represented on project Articulation Councils	8
Involved in developing competencies for articulation agreements	8
Provided equipment/supplies	8
Provided job-training facilities	6
Provided job placement assistance	6
Assisted in marketing efforts	4
Provided funds	2
Provided guest speakers	1

* multiple types of involvement possible at each project

Eight of the original 2 + 2 partnerships reported that business and industry involvement continued at the same level in 1990-91 as in the previous year. Four projects reported increased business and industry involvement in 1990-91. **Only three partnerships noted decreased business and industry involvement in project activities in 1990-91 compared to the prior year,** primarily due to lack of administrative support for project continuation.

With reference to the types of training provided by the 2 + 2 projects, Table 7 shows the job titles appropriate for participating 2 + 2 students in 1990-91. As reported by articulation project directors, these positions ranged from entry level jobs to more sophisticated occupations requiring advanced skills. As some of the 2 + 2 projects have expanded their partnerships to include four-year colleges and universities, some of the job titles indicated in the table require a four-year or advanced degree. Nonetheless, over 150 job titles were identified as appropriate for participating 2 + 2 students, a 15% increase compared to the more than 130 job titles reported in 1989.

Project Coordinators

Five of the original 2 + 2 projects continued to have a key individual serve as the 2 + 2 project coordinator beyond the receipt of special federal funding. In this role, the project coordinator was responsible for the day-to-day activities of the project, including:

- Scheduling Articulation Council meetings;
- Distribution of project materials;
- Reviewing and updating articulation agreements;
- Maintaining student records and collecting student data; and
- Marketing the project to students and parents, through classroom visitations and distribution of brochures and other media.

Credit Granting Practices

None of the original 2 + 2 partnerships reported changing the credit granting process during 1990-91. The majority of 2 + 2 partnerships provided college credit for articulated courses through the credit by examination process. More specifically, as documented in previous evaluation reports, commonalities in the credit granting process of the partnerships include the following:

Table 7

Job Titles Appropriate for Participating 2 + 2 Students*

Account Clerk
Accountant
Actuary
Administrative Assistant
Agricultural Engineer
Agricultural Economist
Agricultural Mechanic
Alterationist
Animal Physiologist
Architect
Architectural Drafter
Auditor
Auto Mechanic
Automotive Sales
Automotive Technician
Automotive Parts Manager
Automotive Detailing/Painting
Automotive Service Writer
Automotive Upholsterer
Aviation Maintenance Techn
Bank Teller
Bio-Medical Instrument Techn
Botanist
Brake/Front End Specialist
Budget Analyst
Building Contractor
Cabinet Maker
CAD Operator
CAD Drafter
Camp Counselor
Carpenter
Chef
Child Care Provider
Civil Engineer
Claims Adjuster
Clerk Typist
Clothing Designer
Collection Worker
Collision Damage Estimator
Commercial Photographer
Communications Technician
Computer Technician
Construction Supplier
Construction Welder
Costumer
Court Reporter
Credit Manager
Cutter
Data Entry Operator
Dental Assistant
Diesel Mechanic
Dressmaker
Early Childhood Instructional
Electronics Assembler
Electronics Research/Develop
Electronics Production Worker
Electronics Technician
Electronics Production Worker
Elementary/Secondary Teacher
Emission Control Specialist
Engine Specialist
Engineering Technician
Environmental Engineer
Environmental Scientist
Executive Secretary
Fabric Sales
Fabric Editor
Facilities Designer
Farm Manager
Fashion Coordinator
Fashion Illustrator
Fashion Merchandiser
File Clerk
Food Technologist
Glazer
Grader
Graphic Artist
Home Economist
Home Day Care Aide
Horticulturist
Hotel/Restaurant Manager
Hydraulic Engineer
Interior Design Analyst
Interior Designer
Irrigation Engineer
Landscape Designer
Laser Technician
Licensed Vocational Nurse
Machinist
Maintenance Welder
Marker
Mechanical Drafter
Medical Assistant
Medical Record Technician
Metal Finisher
Microbiologist
Microwave Technician
Muffler Installer
Office Manager
Patternmaker
Payroll Specialist
Photo Lab Technician
Pipe Welder
Plant Physiologist
Plastics Fabricator
Plumber
Quality Assurance Technician
Radiologic Technician
Rancher/Farmer
Receptionist
Registered Nurse
Registered Dietician
Registered Dental Assistant
Retouch Artist
Revenue Agent
Secretary
Social Worker
Soil Scientist
Special Education Teachers
Statistical Clerk
Surveyor
Systems Drafter
Tax Collector
Technical Illustrator
Textile Sales
Tool Designer
Tune-Up Technician
Underwriter
Voc Ed Instructor
Welding Mechanic
Welding Technician
Wildlife Botanist
Word Processor
Zoologist

*** Includes job titles requiring a four-year or advanced degree**

- Most students have the option of receiving advanced placement into the next higher level course, or passing a formal assessment for retroactive credit for articulated courses;

- The majority of the partnerships have a residency requirement of from 6 to 15 units before the articulated credit is granted;

- Although some 2 + 2 projects required that articulated credit be granted only if the student enrolled in the same program area as the articulated course, the philosophy of other partnerships is that if the student earns the credit, then credit should be granted regardless of major;

- Only two partnerships accepted the high school instructors' examinations and articulated course grade, which would then appear on the college transcript; and

- In order to allow the articulated credit to transfer to other postsecondary institutions, articulated course credit appeared on student transcripts as "credit by examination" and not as "credit for articulated high school courses."

The definition of "examination" in the credit by examination process continued to vary across the 2 + 2 partnerships in 1990-91. Definitions of credit by examination included:

  - Student successfully completes an examination developed by the college for use in its standard credit by examination procedure;

  - Student demonstrates proficiency in meeting specified competencies, either through a practicum demonstration or passing an examination designed specifically for the articulated program; or

  - The final examination of the high school articulated course is the "examination" in the college credit by examination requirement, as jointly agreed by faculty and administrators.

Finally, project directors noted three continuing concerns regarding the granting of articulated credit. Specifically:

- Developing methods to comply with the credit granting requirements of Title V of the California Administrative Code, in light of concerns over the credit by examination process;

- Establishing credit granting practices to allow for the transfer of credit to other postsecondary institutions not participating in 2 + 2 partnerships; and

- Establishing a formalized process for the granting of credit statewide.

Student Retention

During 1990-91, **only five of the original 2 + 2 articulation projects had established a formal student follow-up system.** Eight of the partnerships had developed informal follow-up mechanisms, and five projects had not established any means to follow students as they progress through the education system and the workplace. Thus, the availability of quantitative information related to student retention and completion of the 2 + 2 programs is severely limited.

However, according to project directors of the 2 + 2 projects, five factors were most commonly reported as playing a critical role in contributing to student retention and successful completion of the 2 + 2 programs:

- Committed faculty providing a strong, quality instructional program;

- Proper counseling for students;

- Promotion of careers and career paths for students in the 2 + 2 program;

- Opportunity to earn college credit at the secondary school level; and

- Strong communication between the partner institutions, students, and parents.

The most commonly reported barriers to student retention and completion of 2 + 2 programs, according to project directors, were student-centered and independent of any specific activities of the 2 + 2 projects. These student-centered barriers included lack of motivation, student attrition, and outside influences on the students. In addition, two project directors noted that the strengthened secondary school academic graduation requirements have hindered the ability of students to succeed in the 2 + 2 program.

Only one of the project directors noted any variation in successful or less-than-successful student retention practices by program area. In this specific instance, the welding program, with a more challenging curriculum in the first semester, seemed to increase student attrition.

Linkages

Several specific linkages have been developed by the 2 + 2 partnerships to assist students in moving from one educational level to the next, or from the school to the workplace. Ten of the 2 + 2 projects developed strong counseling components to assist students with career and education decisions. Five partnerships coordinated with existing college matriculation programs to provide linkages with student support services. Two projects encouraged secondary students to complete college applications when they enrolled in articulated courses, while two partnerships coordinated project activities with secondary school job fairs. Finally, one partnership incorporated job seeking techniques, such as resume writing and interview skills, into project activities.

Promotion of the 2 + 2 Partnerships

The 2 + 2 projects have augmented promotional activities during the 1990 program year. Table 8 presents a listing of the types of promotional methods used by the partnerships to market their program to students, parents, faculty, staff, and the community. As shown in the table:

- The majority of the 2 + 2 projects promoted their programs with brochures and through counselor presentations, classroom presentations, and demonstrations at "open house" events;
- Project handbooks served the dual purpose of not only marketing the partnership to faculty, counselors, and administrators, but also supporting institutionalization efforts of the projects;
- All project promotional materials included the definition of 2 + 2 articulation, a description of the benefits of articulation, and an explanation of credit granting procedures. In addition, project newsletters and videotapes often highlighted students and their successes with the 2 + 2 program; and

Table 8

Promotional Activities of the 2 + 2 Projects 1990-91

Promotional Activity	Number of Projects Reporting*
Brochures	17
"Open House" events	14
Counselor presentations	14
Flyers/posters	12
Videotapes	11
Project handbooks	11
Participation in career fairs	7
Newsletters	5
2 + 2 Demonstration Project activities	5
Bookcovers/bookbags	2
Local media coverage	2
Pens	1
Billboards	1

* multiple activities possible at each project

- The State Center Community College District project continued to implement the most diverse range of promotional activities. In addition to previously-developed book bags, book covers, and well-designed multi-color posters, this particular partnership utilized regional media coverage and local billboards for promoting partnership efforts.

During 1990-91, eight of the original 2 + 2 partnerships conducted promotional activities targeting students below grade 11. More specifically, to encourage recruitment efforts and student awareness of postsecondary education opportunities, ninth and tenth grade students were made aware of the 2 + 2 program through required educational and career planning sessions. As in past evaluation reports, one concern raised by project directors in providing such promotional activities is that articulation agreements often include a two-year time limit for the articulated credit. Thus, it would be difficult for students below grade 11 to share in the credit benefits of the articulated program, although students would benefit from exposure to the 2 + 2 program and awareness of postsecondary options.

Project Expansion

Ten of the original 2 + 2 articulation projects continued to expand articulation efforts into additional program areas or additional programs/courses in 1990-91, well after the close of special federal funding. For the most part, these partnerships expanded articulation activities by establishing articulation agreements in new program areas. **In addition, seven partnerships expanded articulation efforts to programs outside of the vocational arena.** As previously mentioned in relation to Table 1, 15 percent, or 128 of the signed articulation agreements in 1990-91, were in the academic area. In one specific partnership, where nearly every vocational education course in the district service area had been articulated, the articulation of academic courses was seen as the next logical step.

Moreover, **three of the 2 + 2 projects have expanded to establish articulation agreements outside of the college district service area**. According to these project directors, the schools and colleges outside of the service area did not offer the vocational programs for which articulation agreements had been established. Thus, articulation agreements were developed with these institutions so that students could meet their career goals through participation in these vocational programs.

Finally, **11 of the 2 + 2 articulation projects have formally expanded their articulation efforts to include the four-year institutions.** These expanded partnerships are known as 2 + 2 + 2 projects, with the last "2" referring to the final two years of a four-year degree program. These 2 + 2 + 2 partnerships also received special funds from the Chancellor's Office Transfer and Articulation Unit for the operation of these programs. Additionally, three of the original 2 + 2 projects have informally expanded into 2 + 2 + 2 partnerships; articulated courses which are transferable to four-year institutions served as the informal "final link" in the 2 + 2 + 2 chain.

Project Institutionalization

As previously discussed in this report, the original 2 + 2 partnerships can be classified into three categories based on their continuation outside of the funding cycle: **expanding projects**, with augmented partnership activities; **sustaining projects**, with continued maintenance of existing project activities; and **inactive projects**, with substantially limited activities. As an index of institutionalization, **the majority of the original 2 + 2 projects--15 partnerships--have continued or expanded project activities beyond the close of special federal funding.** Specific evidence of the institutionalization of the partnerships includes the following:

- Participating secondary school and college districts have expressed commitment, in terms of board resolutions and other declarations, to continue the partnership;
- Commitment has been made for annual meetings of participating faculty to review and update articulation agreements;
- Policies and procedures developed by the partnership have been fully incorporated into participating institutions;
- The 2 + 2 program has been fully institutionalized as an integral part of the vocational curriculum;
- Participating districts contributed funds to assist in project staffing and administration beyond the funding cycle;

- Discussions with local businesses have continued to obtain funds to continue partnership expansion; and

- Partnership collaborative activities have expanded into areas besides 2 + 2 articulation, including application for other partnership grants.

To ensure project continuity, a variety of strategies were used by the partnerships to inform new faculty and staff about articulation activities. These methods included: individual meetings with new faculty/staff by project directors; presentations at new faculty/staff orientation meetings; presentations at faculty discipline meetings; inclusion of information about articulation into faculty handbooks; and articles in faculty/staff newsletters.

The articulation partnerships supported project activities during 1990-91 in a variety of ways. Twelve of the original projects used district general funds to support continued articulation efforts. Eight of the partnerships funded 2 + 2 activities either through the district/college allocation of Vocational Education Act dollars, or through receipt of special project vocational education funds.

Despite continuation and expansion of the majority of 2 + 2 projects outside of the funding cycle, project directors noted three primary limitations that have hindered project institutionalization:

- Shortage of funding to support specific articulation activities, including release time for faculty and project coordinators, clerical support, and student follow-up;

- Substantial changes at the secondary level related to the current restricted fiscal environment, such as faculty and staff reductions, elimination of counselors, and elimination of entire vocational programs; and

- Administrative turnover.

Project directors also noted five critical areas in which they would like additional state level support for the continuation and expansion of their partnerships:

- Additional, on-going funding;

- Clarification of the re-authorization of the Vocational Education Act, with its emphasis on tech-prep programs;

- Increased state-level activities for articulation partnerships, such as additional statewide meetings and localized technical assistance;

- Investigation into restructuring the 2 + 2 contract allocation, so that future 2 + 2 partnerships receive support either for a longer time period or at varying levels of funding; and

- Development of a uniform statewide student follow-up system.

Baseline Student Data

Evaluation activities for the first year of the longitudinal study also involved collecting baseline data from secondary students participating in 2 + 2 programs to establish a database for longitudinal follow-up. These baseline data elements included students':

- Gender, age, and ethnicity;

- Self-reported grade point averages (GPAs); and

- Educational and career goals.

Baseline data were collected for 2,955 students. Key findings from the data are presented below, in terms of student demographics, student performance, and student goals.

Student Demographics

For those students for whom demographic information was provided:

- Fifty-three percent (53%) of the students were males compared to forty-seven percent (47%) females (See Figure 3).

- Figure 4 illustrates that 53% of the students were White. Forty-seven percent (47%) of the total were of an ethnic minority, including Hispanics (32%), Asians (6%), Blacks (3%), Filipinos (3%), American Indians (2%), and Pacific Islanders (1%). Two percent (2%) of the students indicated "other" in response to ethnicity.

Figure 3
Gender of Participating Secondary Students 1990-91

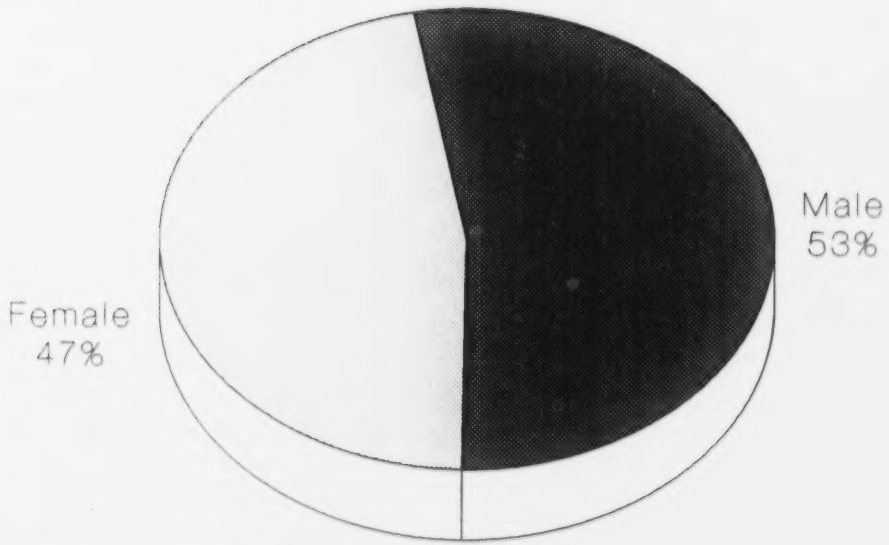
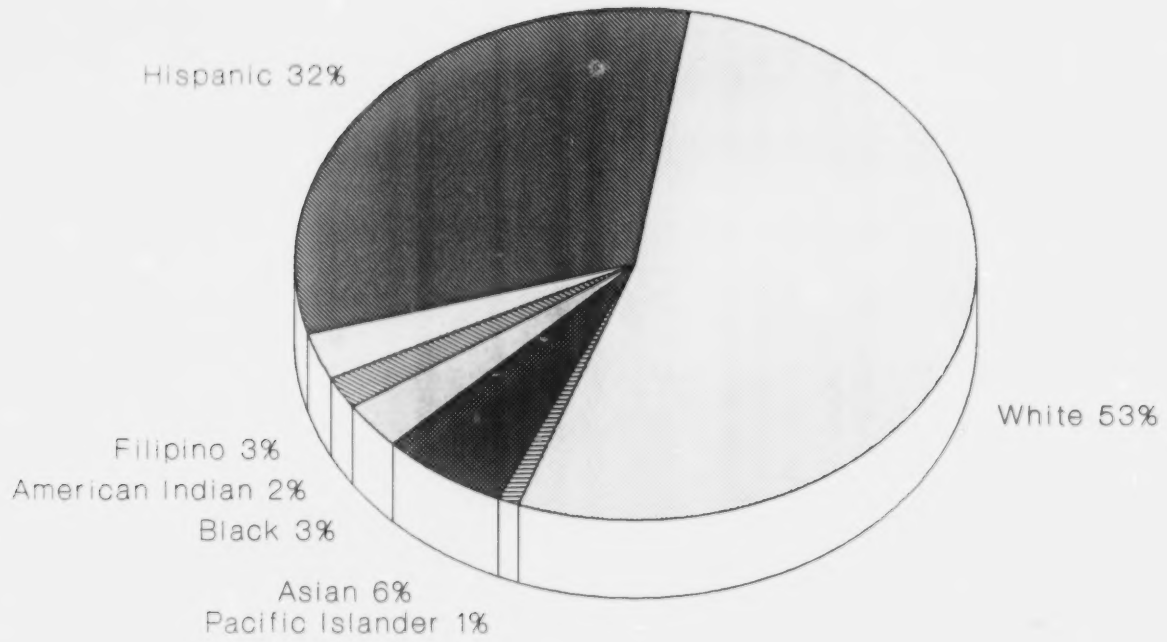


Figure 4
Ethnicity of Participating Secondadry Students 1990-91



(excluding "other" category)

- The age distribution of students is shown in Figure 5. Students' age ranged from 14 to 67 year old. (Baseline data collection targeted secondary school students, including ROC/P students, which accounts for the wide age range in the student population). Most of the participating secondary students were 17 years old.

Student Performance and Enrollment Data

Figure 6 illustrates the distribution of students' GPAs, self-reported by the students as their overall GPA from their last report card. Students' self-reported GPAs have been identified in past research as good predictors of program success. Grade point averages for the 2,204 students who reported GPAs ranged from 1.40 to 4.00, with a mean GPA of 2.90 on the 4-point scale.

Students also indicated the course or courses in which they earned (or planned to earn) articulated credit. As shown in Table 9, the majority of students were enrolled in automotive, typing/word processing, accounting, drafting, and child development courses. Sixty-six students were enrolled in academic courses for which they were receiving articulated credit.

Student Educational and Career Goals

Participating secondary students were asked to identify their education goals from a list that included the following:

- Earn a high school diploma;
- Go to work after high school in a field related to the articulated program;
- Go to work after high school in an unrelated field;
- Transfer to a community college;
- Earn a certificate and/or an A.A. or A.S. degree;
- Transfer to a four-year college or university; and
- Earn a B.A. or B.S. degree.

Respondents could select as many educational or career goals as were applicable; thus, multiple responses to this question were possible.

Figure 5
Age Distribution of Participating Secondary Students 1990-91

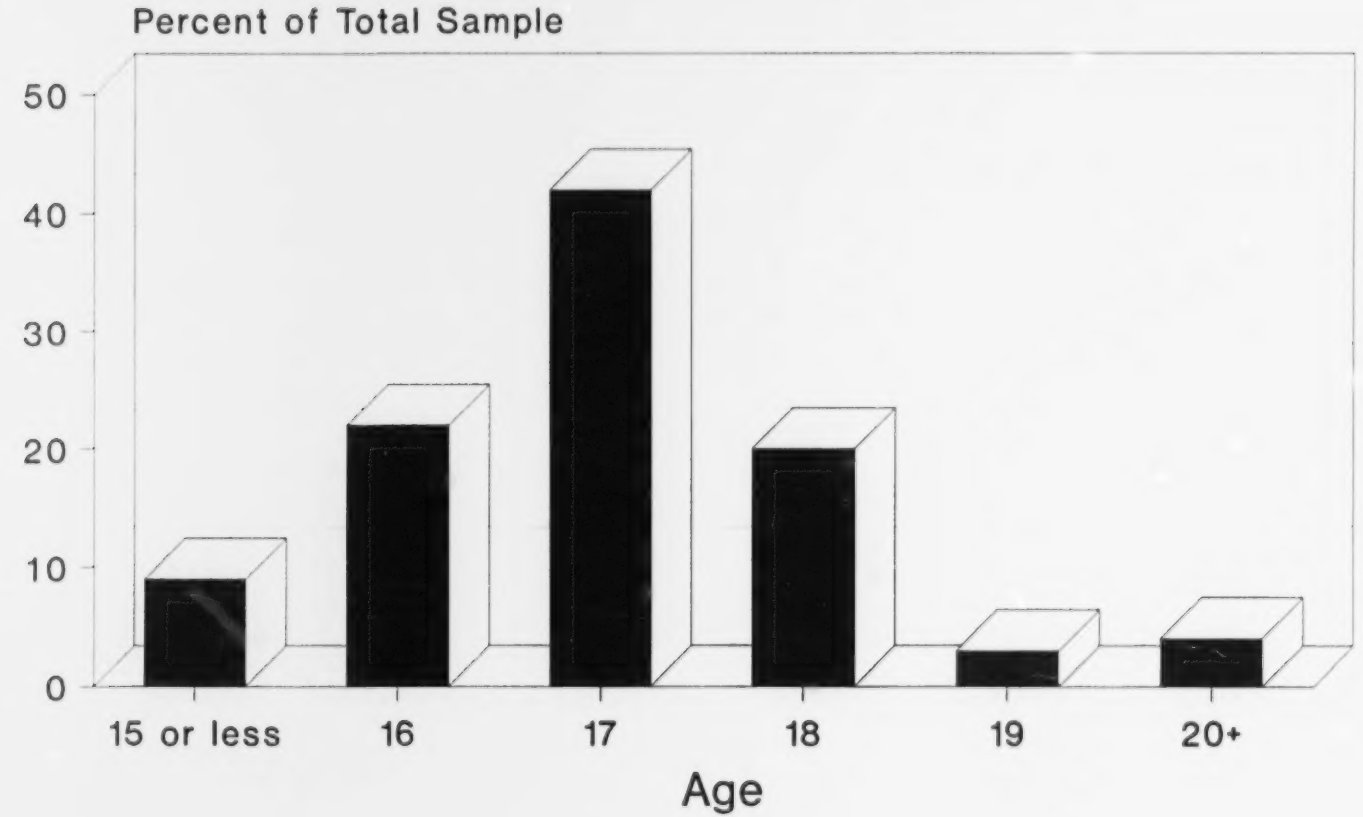


Figure 6
Grade Point Average Distribution for Participating Secondary Students 1990-91

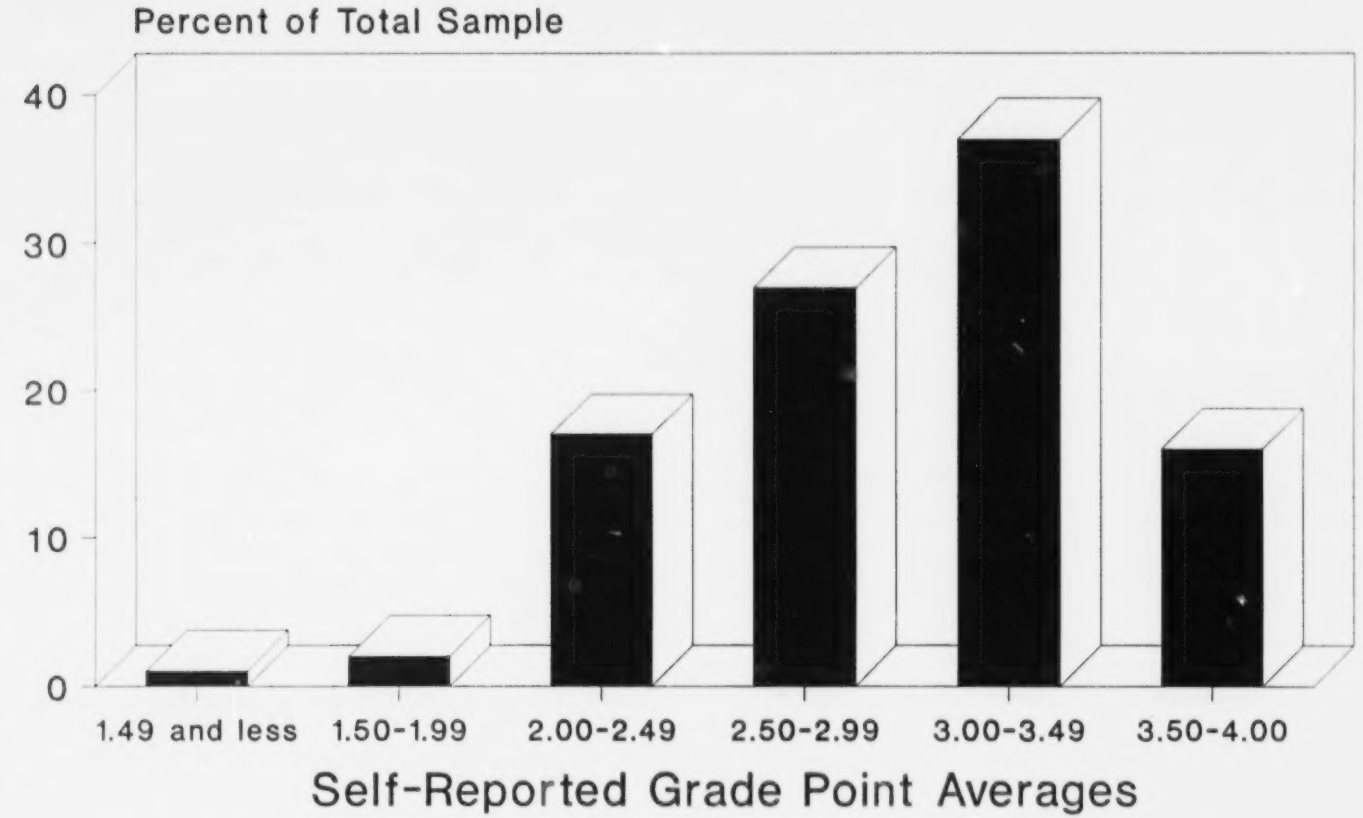


Table 9

Number of Students Receiving (or Intending to Receive) Articulated Credit by Course 1990-91

Articulated Course	Number of Students
Typing/Word Processing	432
Automotive/Auto Mechanics	431
Child Care/Child Development	355
Accounting	352
Drafting	284
Data Processing/Computer Applications	220
Photography	152
Marketing/Merchandising	136
Business	109
Welding	97
Electronics	81
Metal	81
Office Technology	60
Nursing/Nursing Assistant	49
Graphics/Printing	46
Shorthand	45
English	31
Police Science/Law Enforcement	24
Retail Fashion	23
Construction Technology	20
Other Academic Area	20
Food and Nutrition/Foods	19
Mass Communications	12
Cabinetry/Wood Shop	11
Agriculture	9
Home Economics	9
Medical Office Specialist	9
Medical Assisting	7
Mathematics	5
Family Life	4
Dental/Dental Assistant	1
TOTAL	**2,873**

Figure 7 presents the percent of individuals responding to each educational or career goal:

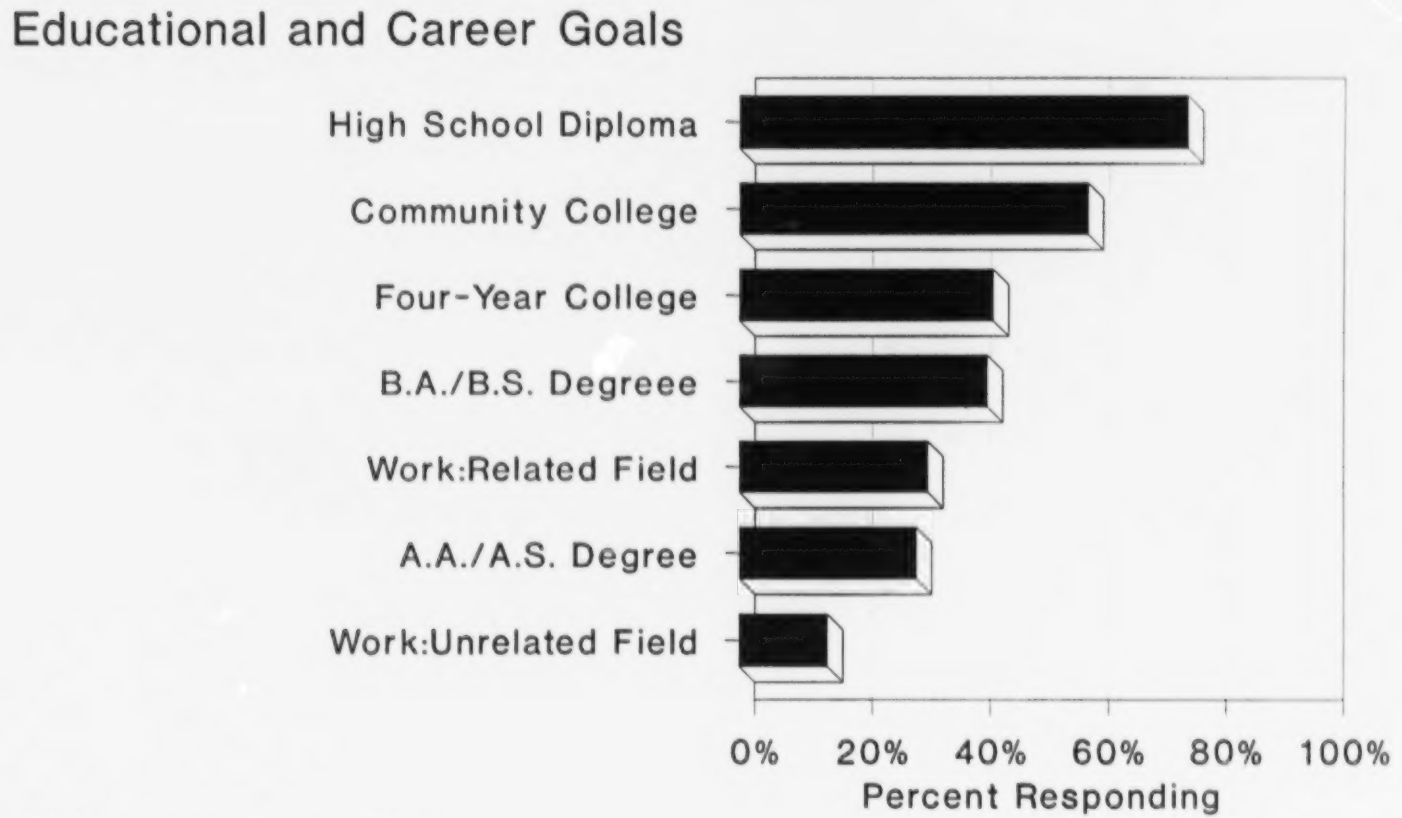
- More than three-quarters (76%) of participating secondary students reported that they plan to earn a high school diploma;

- With respect to postsecondary education plans, the majority of students indicated that they intend to enroll in or graduate from a community college. Specifically, **fifty-nine percent (59%) of the participating secondary students reported that they plan to transfer to a community college.** Moreover, forty-three percent (43%) of the students plan to transfer to a four-year college or university;

- Thirty percent (30%) of the participating secondary students reported that their intent is to earn a certificate and/or an A.A. or A.S. degree. Forty-two percent (42%) of the students stated that they intend to earn a B.A. or B.S. degree; and

- Thirty-two percent (32%) of students reported that they plan to go to work after secondary school in a field related to the articulated program. In contrast, only 15% noted that they plan to work in an unrelated field after secondary school.

Figure 7
Educational and Career Goals of Participating Secondary Students 1990-91



(multiple responses possible)

Conclusions and Recommendations

We may not have had exponential growth this past year, but what we have had is a continuation of what has worked.

College Counselor

In 1990-91, **the majority of the original 2 + 2 projects--15 partnerships--have continued or expanded project activities beyond the close of special federal funding.** More specifically:

- The number of participating institutions increased by 10% from the previous year;
- Compared to 1989-90 figures, the number of articulation agreements increased by 20%;
- The majority of partnerships expanded into new program areas or programs outside of the vocational arena, with 15% of all articulation agreements in the academic area;
- Business and industry continued and/or expanded involved in 2 + 2 partnership efforts; and
- Most 2 + 2 projects developed linkages, particularly in the counseling area, to assist students in moving from one educational level to the next.

Nevertheless, several challenges faced the 2 + 2 partnerships as they continued beyond the close of funding in 1990-91:

- Five of the original 2 + 2 projects can be classified as inactive, with no expansion activities, promotional activities, and/or active articulation agreements;
- Only five of the original 2 + 2 articulation projects had established a formal student follow-up system;

- Changing student demographics have impacted the ability of the projects to establish direct four-year education pathways, as a growing number of students leave the program after grade 12; and

- Project directors and program staff are confused about the relationship between the current 2 + 2 partnerships and the new tech-prep programs as specified in the re-authorization of the Vocational Education Act.

Based on these findings from the first year of the longitudinal study, ETI offers the following seven recommendations to the Chancellor's Office and the CDE:

Consider Expansion of Statewide Support for 2 + 2 Partnerships
As 2 + 2 project directors valued the assistance provided by the 2 + 2 demonstration projects and statewide conferences, ETI recommends that both agencies consider expanding such support, particularly in light of the changes to the Vocational Education Act.

Disseminate Information Regarding Articulated Credit
Due to continued concern over credit granting by the 2 + 2 partnerships, ETI recommends that the state agencies distribute the special Task Force report which addresses issues regarding articulated credit. This is particularly important given the changing demographics of secondary student participants in the 2 + 2 partnerships.

Consider the Standardization of Articulation Forms
The Chancellor's Office and CDE should investigate establishing standard forms for articulation agreements in order to provide consistency in reporting and record-keeping across all partnerships. Similarly, standard forms for student follow-up would allow for coordination of evaluation efforts with other statewide articulation activities (such as the 2 + 2 + 2 programs and the California Articulation Network [CAN]).

Emphasize the Importance of Counseling in 2 + 2 Partnerships
Given the strong role of counseling in student retention and successful completion of 2 + 2 programs, as reported by project directors, ETI recommends that for future 2 + 2 and tech-prep efforts, the state agencies continue to highlight the importance of the critical role of counseling for student success in 2 + 2 programs.

Clarify the Distinctions Between 2 + 2 and Tech Prep
With the augmented role of tech-prep in the new Vocational and Technology Education Act, ETI recommends that both agencies develop and disseminate information clearly describing the association between these two programs.

Develop a Statewide Management Information System
As only five of the original 2 + 2 partnerships have established a formal student follow-up system, ETI recommends that the state agencies review the feasibility of establishing a formal management information system to capture accurate student and program data for comprehensive program evaluation.

Expand the Focus of the Longitudinal Study
Given the changing demographics of student participants, specifically the increased number of 2 + 2 participants who "stop out," ETI recommends that the state agencies expand the focus of the current longitudinal study to include examination of the educational and career outcomes of these students.

APPENDICES

APPENDIX A

Advisory Committee Members

Jim Allison, California Department of Education

Dr. Kay Bruce, Cypress College

Dr. Shannon Christiansen, South County Community College District

Mark Diaz, John Glenn High School

Bobbie Juzek, Chancellor's Office, California Community Colleges

Mary Ann Kollenberg, Sierra College

Bud Steuart, Fresno Metropolitan ROC/P

Dr. Elizabeth Stark, Chaffey College

APPENDIX B

Student Data Form

2 + 2 Articulated Career Education Program
Secondary Student Data Form

We need your help in completing this survey about the 2 + 2 programs. Your answers will be used only for research purposes to improve the 2 + 2 programs.

Name:_____

Social Security Number:_____ Date of Birth:_____

Are you currently enrolled in or have participated in the 2 + 2 program? *(check one)*

[ ] Yes [ ] No

> > > If YES

Please complete the rest of this form.

> > > If NO

STOP. Do not complete this form.

For which classes do you plan to receive an articulation certificate, college credit, or advanced placement?

_____

_____

_____

Sex: *(check one)* [ ] Male [ ] Female

Ethnicity: *(check one)*

[ ] American Indian [ ] Hispanic
[ ] Asian [ ] White
[ ] Black [ ] Other
[ ] Filipino

Overall GPA (as of last report card): _____

What are your goals? *(check **all** that apply)*

[ ] Earn a high school diploma
[ ] Go to work after high school in a field related to the articulated course(s)
[ ] Go to work after high school in an unrelated field
[ ] Enroll in a community college (College name:_____)
[ ] Earn an associate two-year degree
[ ] Transfer to a four-year college or university
[ ] Earn a four-year degree

Instructor signature/date:_____

School/class:_____

Thank you for completing this survey

APPENDIX C

Program Data Forms/Site Visit Interview Schedule

Articulation Project: _____

Institutions Participating in 2 + 2 Articulation Efforts			
Institution	**Number Participating 1989-90**	**Number Participating 1990-91**	**Names of 1991 Institutions***
Secondary School Districts			
Secondary Schools			
ROC/Ps			
Adult Schools			

* Attach additional sheets as necessary

Institutions Participating in 2 + 2 Articulation Efforts			
Institution	**Number Participating 1989-90**	**Number Participating 1990-91**	**Names of 1991 Institutions***
Community College Districts			
Community Colleges			
California State University (CSU)			
University of California (UC)			
Private Institutions			

* Attach additional sheets as necessary

Articulation Project: _____

ARTICULATION AGREEMENT MATRIX

Discipline Area	Number of Signed Agreements	Number of Faculty Involved*	Appropriate Job Titles for Program Completers
Agriculture			
Business Education-Office			
Business Education-Marketing			
Consumer Economics/Homemaking			
Diviersified Occupations			

* Number of faculty directly involved in developing the 2 + 2 articulation agreements.

ARTICULATION AGREEMENT MATRIX

Discipline Area	Number of Signed Agreements	Number of Faculty Involved*	Appropriate Job Titles for Program Completers
English/Language Arts			
Health Occupations			
Home Economics Related			
Mathematics			
Science			

* Number of faculty directly involved in developing the 2 + 2 articulation agreements.

ARTICULATION AGREEMENT MATRIX

Discipline Area	Number of Signed Agreements	Number of Faculty Involved*	Appropriate Job Titles for Program Completers
Social Sciences			
Trade and Industry: Construction Technology			
Trade and Industry: Electronics Technology			
Trade and Industry: Manufacturing Technology			
Trade and Industry: Power, Energy, Transportation Technology			

* Number of faculty directly involved in developing the 2 + 2 articulation agreements.

ARTICULATION AGREEMENT MATRIX			
Discipline Area	**Number of Signed Agreements**	**Number of Faculty Involved***	**Appropriate Job Titles for Program Completers**
Trade and Industry: Visual Communication - Drafting			
Trade and Industry: Visual Communication - Graphics			
Other (specify): _____			

* Number of faculty directly involved in developing the 2 + 2 articulation agreements.

Interviewer:_____

Joint Career-Vocational Education 2 + 2 Articulation Projects Third-Party Evaluation Survey

Articulation Project:_____

Community College Contact:_____
(name and phone number)

Secondary School/ROC/P Contact:_____
(name and phone number)

Project Activities 1990-91

1. Describe your articulation activities during 1990-91. Which activities were more successful? In need of improvement?

2. What changes have you seen in your articulation activities during 1990-91?

Project Management

3. Has your articulation Steering Committee/Advisory Council continued to meet during 1990-91?

4. Has the composition of your articulation Steering Committee/Advisory Council changed during 1990-91? Describe.

5. Have your articulation discipline committees/task forces/curriculum teams continued to meet? Describe.

6. Have any articulation agreements been canceled/discontinued?

   If yes, which agreements were canceled/discontinued and why?

Business and Industry

7. Which local businesses and industries have been involved in your articulation activities during 1990-91? (specify names of companies)

8. How would you describe the involvement of business and industry in your articulation activities during 1990-91?

[ ] Represented on project Steering Committee
[ ] Involved in activities of project Steering Committee
[ ] Involved in developing competencies for articulation agreements
[ ] Provided equipment and supplies
[ ] Provided funds
[ ] Assisted in marketing your articulation project
[ ] Provided job-training facilities
[ ] Provided job-placement assistance
[ ] Other (specify):_____
[ ] Other (specify):_____
[ ] Other (specify):_____

9. How has business and industry involvement in your 2 + 2 activities efforts changed with the close of state funding?

10. Are specific employment rates available for students participating in your articulation efforts who complete grade 12? Grade 14? Describe.

Credit Granting Practices

11. Prior evaluation reports have described your credit granting activities. Have these practices changed during 1990-91?

12. What recommendations do you have to improve the articulation credit granting process locally? Statewide?

Student Retention

13. What specific procedures have been established to follow students as they progress from the secondary to the college level?

14. What factors do you believe contribute to student retention and successful completion in your 2 + 2 program?

15. What do you believe are the primary barriers to student retention and successful completion in your 2 + 2 program?

16. Are there any variations in successful or less-than-successful student retention practices by program area? Describe.

17. What specific linkages (e.g., curriculum modification, student support services) have you developed to assist students in moving from secondary to postsecondary education? Secondary and/or postsecondary education to the job market?

18. How do you inform new faculty/staff about your articulation activities to ensure project continuity?

Project Expansion

19. Have your articulation efforts expanded (or plan to expand) into additional program areas or additional programs/courses during 1990-91? If yes, which ones? If no, why not?

20. Have your articulation efforts expanded into programs outside of the vocational area during 1990-91? How? For which areas?

21. Have your articulation efforts expanded into a formal 2 + 2 + 2 articulation?

    If Yes:

    a. Have you received special state funds for 2 + 2 + 2 articulation?

    b. Which program areas have you expanded into 2 + 2 + 2?

    c. Have written articulation agreements been established with the four-year institutions for these program areas?

Project Promotion

22. Which articulation promotional activities have you undertaken in 1990-91?

    [ ] Videotapes
    [ ] Flyers
    [ ] Brochures
    [ ] Newsletters
    [ ] Bookcovers/bookbags
    [ ] Dissemination of a project handbook
    [ ] Presentations at Open House events
    [ ] Classroom presentations
    [ ] Counselor presentations
    [ ] Other (specify):_____
    [ ] Other (specify):_____
    [ ] Other (specify):_____

23. To what extent do you conduct promotional activities for your 2 + 2 efforts for students below grade 11?

24. Have you worked with other articulation efforts locally or statewide? Describe.

Institutionalization

25. How are you funding your articulation activities?

26. To what extent have you observed faculty/staff ownership for your articulation efforts?

27. To what extent have your articulation efforts been coordinated with the 2 + 2 + 2 funded programs?

28 a. What concerns, if any, have you encountered as your articulation activities have progressed beyond the state funding cycle?

b. How have these concerns been resolved?

29. a. How could the California Department of Education and the Chancellor's Office best assist you in articulation?

b. What suggestions do you have for future federal funding priorities in articulation?